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ABSTRACT

This digest presents information for parents regarding science and math homework. The benefits of homework are discussed and guidelines for gauging the amount of time spent on homework are given. Suggestions for family policies and procedures for helping children complete homework assignments are also presented. (WRM)

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Teachers assign homework for a variety of reasons: to help students review, apply, and integrate what has been learned in class; to help them prepare for the next class session; to extend student exploration of topics more fully than class time permits; or to help students gain skills in self-directed learning and using resources such as libraries and reference materials. Homework can also help students:

- Develop mastery by practicing what they have learned.
- Acquire effective habits of self-discipline and time management.
- Learn to work independently.
- Gain a sense of personal responsibility for learning.
- Develop research skills such as locating, organizing, and condensing information.

Homework can also bring parents and teachers closer together; parents who supervise homework and assist their children with assignments learn more about their children's education and about the school [Adapted from *Helping your child with homework*, (Paulu, 1995), available on-line from the U.S. Department of Education at *http://www.ed.gov/pubs/parents/Homework/index.html*].

Homework is intended to be a positive experience that encourages children to learn; assignments should not be viewed as punishment. According to Paulu (1995), children who spend more time on homework, on average, do better academically than children who don't, and the academic benefits of homework increase in the upper grades. Research on homework during the last decade began to focus on the relationship between homework and student achievement, and has greatly strengthened the case for assigning homework. Although there are mixed findings about whether homework actually increases students' academic achievement, many teachers and parents agree that homework develops students' initiative and responsibility, and fulfills the expectations of students, parents, and the public. "Studies generally have found homework assignments to be most helpful if they are carefully planned by the teachers and have direct meaning to students" (Paulu, 1995).

How much homework is reasonable?

The National Parent-Teacher Association and the National Education Association recommend the following amounts of homework :

- Kindergarten to 3rd grade: Up to 20 minutes each day.
- 4th - 6th grade: 20 to 40 minutes each day.
- 7th - 12th grade: Generally up to 2 hours, but recommendations vary according to the type and number of subjects a student is taking.

College-bound students will receive increasingly lengthy and complex assignments. Also, some students may require more time while others require less time to complete their homework . (See "The Basics" in *Helping your child with homework* , and a brochure, *How important is homework*, available on-line at *http://www.accesseric.org:81/resources/parent/homewrk.html*.)

It will take some students longer than others to complete assignments. Research studies have shown that students with low test scores who spend substantial time on homework get grades as good as higher ability students who spend less time. However, teachers and parents need to be aware that if assignments generally take too long, this may be a may sign that a student needs more instruction to complete them successfully. While some homework is a good thing, too much can frustrate students and cause stress. It's also important that kids have time to exercise, play, socialize, and pursue their own personal interests.

> "Students who have good attention and concentration skills often finish homework quickly. They usually listen so well in class that they have learned much of what they need to know already. It is said that students who listen very carefully to what teachers are saying, can cut their study time by 45%" (From *Homework & studying at home*, available online at *http://henson.austin.apple.com/edres/parents/pfet/hwrkmenu.shtml*).

How can I help my child with homework?

First, avoid doing the homework yourself! Doing homework for a child sends a message that he or she is incapable of doing the work and that perfection is the main objective. It also denies your child the opportunity to develop skills and gain understanding from the experience. Remember, doing homework should help children plan, manage, and complete work on their own. Parents should be familiar with the school's homework policy and help their children get the most out of homework by:

- Exhibiting a positive attitude in word and deed that homework is important and education comes first. For many, resistance to doing homework is a source of conflict in the home. For help in reducing the conflict, see "Hassle free homework: A six week plan for parents and children to take the pain out of homework" by Cecil Clark.
- Encouraging children to take notes about homework assignments when they are given.
- Discussing homework assignments with children to become familiar with what they are studying. Talk

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together about the topic of an essay before the child begins writing, and do short quizzes on the day before a test.

- Limiting after-school activities to allow time for homework and family activities.

- Limiting telephone use by agreeing ahead of time what will be allowed.

- Planning homework schedules and routines that allow some free time when assignments are completed. Make sure your child is well rested, not hungry, and has had time to wind down after school (Herold, 1999). Also, avoid scheduling homework right before bedtime when children will be too tired or feel pressured to finish by bedtime. For long-term projects, mark plans and deadlines on a calendar.

- Monitoring television and radio use. If there is a favorite show that comes on during scheduled study time, arrange to record the show if possible.

- Doing some assignments or questions together with a child when he or she asks for help. Sometimes children need help in learning how to break large assignments down into manageable pieces.

- Staying nearby—reading, writing, studying or catching up on paperwork. Be available to help if asked, but avoid imposing your help or way of doing something.

- Checking completed assignments, and reviewing homework that has been marked and returned. Avoid negative comments, but contact the teacher if your child consistently gets 25% or more wrong on homework problems and assignments, or if he or she never seems to have any homework (Shore, 1999).

- Providing children with convenient, quiet, and comfortable work areas that are well-lit , free of family traffic, and have the materials needed to complete assignments. Some people do study better with music or background noise, so try to accommodate your child's preferred learning style.

- Encouraging the use of reference materials (such as dictionaries and encyclopedias), and providing a computer and calculator if possible. If a computer is not available in the home, plan regular visits to a public library or community learning center where access is available.

The computer has become a common and essential tool in learning many school subjects, particularly mathematics and science. You and your children can use a computer to:

- Complete reports and assignments using wordprocessing programs and other software.

- Find information using reference materials on CD-ROMS; many are typically available from school and public libraries.

- Use software packages that teach science concepts and skills in interesting and enjoyable ways.

- Access the abundant science and homework resources and assistance freely available on the Internet. See the Homework Companion at *http://www.ericse.org/homework.html* for a directory to many resources.

For more information about helping your child with homework, see "How Parents Can Help With Homework" by Judith Lips and "Homework Helpers For Parents" by Kenneth Shore, both available online at *http://family.go.com/Features/family_1999_02/nwfm/nwfm29homework/*. Parents should also provide feedback to the teacher, a counselor, or a school administrator if there are ongoing problems with time requirements for homework, difficulty in understanding or completing assignments, a consistently negative attitude toward homework assignments, or lack of progress in learning. Homework is an essential component of the total educational program for students and should enhance the intellectual development of a child while creating greater interest and success in learning and studying.

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Online Resources

For more online resources regarding homework in science and mathematics, please see The CSMEE Homework Companion at *http://www.ericse.org/homework.html*.

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